

**RESTRICTION/ELECTION REQUIREMENT OF GROUP - TRAVERSED**

In response to a Restriction / Election Requirement as stated in the Office Action page 2, sections 1 and 2, Applicants respectfully traverses based upon the following grounds.

**NOT INDEPENDENT AND DISTINCT INVENTIONS**

Applicants note that 35 U.S.C. §121, the basis for a restriction and election of species requirement, provides for a restriction only if two or more independent and distinct inventions are claimed in one application. As provided in MPEP §802.01 entitled Meaning of "Independent" and "Distinct":

The term "independent" (i.e., not dependent) means that there is no disclosed relationship between the two or more subjects disclosed, that is, they are unconnected in design, operation, or effect, for example: (1) species under a genus which species are not usable together as disclosed; or (2) process and apparatus incapable of being used in practicing the process. (emphasis added)

It is respectfully submitted that a contention cannot validly be made that the subject matter recited in the claims in issue relating to the respective embodiments of the present invention have no disclosed relationship.

In this connection, Applicants note that a basic inventive concept of the claims in issue relates to a perimeter frame including at least one electrical structure electrically connectable to a substrate. Applicants respectfully submit that differences should not be considered as rendering the respective embodiments independent and distinct to the extent required by 35 U.S.C. §121.

**PROVISIONAL ELECTION OF GROUP I**

In order to comply with the election of group requirement, Applicants provisionally elect, with traverse, for prosecution on the merits, Group 1 claims 1-56 (with claims 1-4, 7, 11-14, 17, 20-23, 26, 30-32, 35, 39-41, 44, 48-50, and 53 amended by this present amendment).

**RESTRICTION/ELECTION REQUIREMENT OF SPECIES-TRAVERSED**

A restriction/election requirement to elect single disclosed species has been made for the reasons beginning on pages 3 and 4 of the Office Action. Applicants respectfully traverse based upon the following grounds.

**REASONABLE NUMBER OF SPECIES, WITH GENERIC CLAIM**

As traversal, 37 CFR §1.141 provides that more than one species of an invention, not to exceed a reasonable number, may be specifically claimed in different claims in one application providing the application also includes an allowable generic claim to all of the claimed species and all claims to the species in excess of one are written in dependent form or otherwise include the limitations of an allowable generic claim. Applicants submit that at least presently independent claims 1 and 11, as amended are allowable and generic, and that all other pending claims contain the limitations of such generic claims. Applicants submit that the Examiner's contended patentably distinct species A-F are but variations of generic claims. That is, embodiments illustrated in Figs. 8-10, 14, and 15 are but variations of embodiment's illustrated in Figs. 1-7 and 11-13. Applicants respectfully submit that the election of species requirement should be withdrawn and all claims considered and allowed.

**PROVISIONAL ELECTION OF SPECIES**

In order to comply with the election of species requirement, Applicants provisionally elect, with traverse, for prosecution on the merits, Species A-Figs. 1-7 and 11-13, including at least independent claims 1 and 11, as amended and claims 2-9 and 12-19 dependent therefrom respectively (claims 1-4, 7, 11-14, and 17 amended by this present amendment).

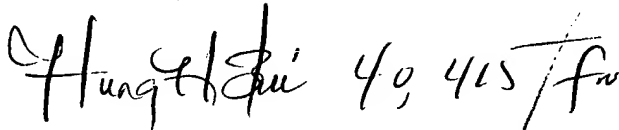
**NO ADMISSION-RESTRICTION/ELECTION**

Applicants submits that the instant response (including the comments submitted and the provisional election) is not an admission on the record that the respective species are separately distinct species and/or obvious variants.

**CONCLUSION**

To whatever other extent is actually necessary, Applicants petition for an extension of time under 37 CFR. §1.136. Please charge any shortage in the fees due in connection with the filing of this paper to ATS&K Deposit Account No. 01-2135 (as Case No. 219.40442X00).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Hung Hui 40, 415 / fw".

Paul W. Bobowiec  
Registration No. 47,431  
ANTONELLI, TERRY, STOUT & KRAUS, LLP

PJS/PWB  
(703)312-6600

**APPENDIX - VERSION WITH MARKINGS TO SHOW CHANGES MADE IN THE  
CLAIMS**

Please amend claims 1-4, 7, 11-14, 17, 20-23, 26, 30-32, 35, 39-41, 44, 48-50, 53, 57-61, as follows. Note that the full text of all claims (including those not being amended within this paper) may also be included to provide the convenience of a complete set of claims for easy review:

1. (Amended) A perimeter frame [attached] attachable to a perimeter of a substrate on one of a perimeter-side and a die-side of the substrate, the perimeter frame [arranged to provide an electrical function] including at least one electrical structure electrically connectable to the substrate.

2. (Amended) A frame as claimed in claim 1, [in which the electrical function being] where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

3. (Amended) A frame as claimed in claim 1, the frame [being attached in multiple parts] comprising a plurality of electrically segregated frame sections.

4. (Amended) A frame as claimed in claim 1, in which the [substrate is] frame is attachable to one of a thick-core, a thin-core, and a coreless substrate in one of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) carrier package.

5. A frame as claimed in claim 4, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

6. A frame as claimed in claim 4, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

7. (Amended) A frame as claimed in claim 1, the frame substantially made of one of electrically conductive, insulating, and intermingled electrically conductive and insulating sections, [and formed as] is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

8. A frame as claimed in claim 7, the sections further being thermally conductive.

9. A frame as claimed in claim 8, the frame being adapted to at least partially support a heat sink.

10. A frame as claimed in claim 8, the frame having an integrated cooling structure.

11. (Amended) A stiffener frame [attached] attachable to a perimeter of a substrate on one of a perimeter-side and die-side of the substrate to provide predetermined stiffening thereto, the stiffener frame [providing double electrical

function] including at least one electrical structure electrically connectable to the substrate.

12. (Amended) A frame as claimed in claim 11, [in which the double electrical function being ones] where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

13. (Amended) A frame as claimed in claim 11, the frame [being attached in multiple parts] comprising a plurality of electrically segregated frame sections.

14. (Amended) A frame as claimed in claim 11, in which the [substrate being] frame is attachable to one of a thin-core, and a coreless substrate of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) carrier package, to provide predetermined stiffening thereto.

15. A frame as claimed in claim 14, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

16. A frame as claimed in claim 14, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

17. (Amended) A frame as claimed in claim 11, the frame substantially made of one of electrically conductive, insulating, and mixed electrically conductive and insulating sections, [and formed as] is one of a molded, stamped, etched, extruded

and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

18. A frame as claimed in claim 17, the sections further being thermally conductive.

19. A frame as claimed in claim 17, the frame being adapted to at least partially support a heat sink.

20. (Amended) A frame as claimed in claim 17, the frame [being] having an integrated cooling structure.

21. (Amended) A carrier package comprising:

one of a thick, a thin-core, and a coreless substrate of one of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) package; and

perimeter frame [attached] attachable to a perimeter of a substrate on one of a perimeter-side and a die-side of the substrate, the perimeter frame [arranged to provide an electrical function] including at least one electrical structure electrically connectable to the substrate.

22. (Amended) A carrier package as claimed in claim 21, [in which the electrical function being] where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

23. (Amended) A carrier package as claimed in claim 21, [the being attached in multiple parts] comprising a plurality of electrically segregated frame sections.

24. A carrier package as claimed in claim 21, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

25. A carrier package as claimed in claim 21, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

26. (Amended) A carrier package as claimed in claim 21, the frame substantially made of one of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, and [formed as] is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

27. A carrier package as claimed in claim 26, the sections further being thermally conductive.

28. A carrier package as claimed in claim 26, the frame being adapted to at least partially support a heat sink.

29. A carrier package as claimed in claim 26, the frame having an integrated cooling structure.



30. (Amended) A carrier package comprising:  
one of a thin-core, and a coreless substrate of one of a ceramic, a flex, and an IC-PCB package; and  
a stiffener frame attached to a perimeter of the substrate on one of a perimeter-side and die side of the substrate to provide predetermined stiffening thereto, the stiffener frame [providing double electrical function] including at least one electrical structure electrically connectable to the substrate.

31. (Amended) A carrier package as claimed in claim 30, [in which the double electrical function being ones] where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

32. (Amended) A carrier package as claimed in claim 30, the frame [being attached in multiple parts] comprising a plurality of electrically segregated frame sections.

33. A carrier package as claimed in claim 30, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

34. A carrier package as claimed in claim 30, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

35. (Amended) A carrier package as claimed in claim 30, the frame substantially made of one of an electrically conductive, insulating, and intermingled

electrically conductive and insulating sections, and [formed as] is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

36. A carrier package as claimed in claim 35, the sections further being thermally conductive.

37. A carrier package as claimed in claim 35, the frame being adapted to at least partially support a heat sink.

38. A carrier package as claimed in claim 35, the frame having an integrated cooling structure.

39. (Amended) A packaged integrated circuit (IC) comprising:

one of a ceramic, flex, and an integrated circuit printed circuit board (IC-PCB) carrier package including one of a thick, thin-core, and coreless substrate; and a perimeter frame attached to a perimeter of the substrate on one of a perimeter-side and a die-side of the substrate, the perimeter frame [arranged to provide an electrical function] including at least one electrical structure electrically connectable to the substrate.

40. (Amended) A packaged IC as claimed in claim 39, [in which the electrical function being] where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

41. (Amended) A packaged IC as claimed in claim 39, the frame [being attached in multiple parts] comprising a plurality of electrically segregated frame sections.

42. A packaged IC as claimed in claim 39, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

43. A packaged IC as claimed in claim 39, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

44. (Amended) A packaged IC as claimed in claims 39, the frame substantially made of one of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, [and formed as] is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

45. A packaged IC as claimed in claim 44, the sections further being thermally conductive.

46. A packaged IC as claimed in claim 44, the frame being adapted to at least partially support a heat sink.

47. A packaged IC as claimed in claim 44, the frame having an integrated cooling structure.

48. (Amended) A packaged integrated circuit (IC) comprising:  
one of a ceramic, flex, and an integrated circuit printed circuit board (IC-PCB)  
carrier package including one of a thick, thin-core, and coreless substrate; and  
a stiffener frame [attached] attachable to a perimeter of a substrate on one of  
a perimeter-side and die-side of the substrate to provide predetermined stiffening  
thereto, the stiffener frame [providing double electrical function] including at least one  
electrical structure electrically connectable to the substrate.

49. (Amended) A packaged IC as claimed in claim 48, [in which the double  
electrical function being ones] where the at least one electrical structure is one of a  
ground wiring connection, a power wiring connection, and a capacitor. [capacitance.]

50. (Amended) A packaged IC as claimed in claim 48, the frame [being  
attached in multiple parts] comprising a plurality of electrically segregated frame  
sections.

51. A packaged IC as claimed in claim 48, the package being one of a  
pinned grid array (PGA), and a ball grid array (BGA) carrier package.

52. An packaged IC as claimed in claim 48, the package being one of a flip  
chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier  
package.

53. (Amended) A packaged IC as claimed in claim 48, the frame substantially made of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, [and formed as] is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

54. An packaged IC as claimed in claim 53, the sections further being thermally conductive.

55. A packaged IC as claimed in claim 53, the frame being adapted to at least partially support a heat sink.

56. A packaged IC as claimed in claim 53, the frame having an integrated cooling structure.

57. (Amended) A method for providing electrical function from a perimeter [side] of a substrate to a die-side of a die mountable in the [a] substrate, [which comprises] comprising:

providing an external power connection to a perimeter frame attached to perimeter of [a] the substrate,

conducting along an electrical path through the [electrical function from] perimeter frame, through a perimeter frame-substrate interface, through the substrate, and through a substrate-die interface, to the die.

58. (Amended) A method as claimed in claim 57, where [electrical function further comprises] the external power connection is one of power and ground connection.

59. (Amended) A method as claimed in claim 57, where the perimeter frame also provides stiffening support.

60. (Amended) A method for providing power from a perimeter [side] of a substrate to a die-side of a die mountable on the substrate, [which comprises] comprising:

providing a perimeter frame having a predetermined capacitance attached to perimeter of [a] the substrate,

[conducting power from] providing an electrical connection through the perimeter frame capacitance, through a perimeter frame substrate interface, through the substrate, and through a substrate-die interface, to the die.

61. (Amended) A method as claimed in claim 60, where [electrical function further comprises] the electrical power connection is one of power and ground connection.

62. A method as claimed in claim 60, where perimeter frame capacitance also provides stiffening support.